IN THE CLAIMS:

1. (Currently Amended) A scanning system ~~based on the principle of confocal microscopy~~, comprising a light source, imaging optics for focusing ~~the~~ light emitted from the light source onto an object to be scanned, ~~furthermore comprising~~ an image detector to detect ~~the~~ light of a point on the object that is backscattered from the object and that passes back through ~~the same~~ said imaging optics to at least two radiation-sensitive sensor elements (pixel), wherein

~~at least~~the image detector comprises two sensor elements ~~are assigned to an~~for detecting the object point irradiated via the imaging optics,

means ~~for changing the length of the optical path (d) are provided~~ in the beam path between the aperture array and the object for changing a length of an optical path (d), ~~which optical distance (d) of the image plane can be varied in a specified manner,~~ and

means ~~are provided which influence~~for adjusting ~~the~~an accumulation of charges in the ~~at least~~ two sensor elements from ~~the intensity of~~ light intensity of the observed beam path during ~~the~~ a single exposure period (T) in such a manner that a correlation with the optical distance (d) of the image plane from the imaging optics is created so that an altitude coordinate (zs) of the object can be reconstructed from the

distribution of ~~the~~ levels of intensity acquired from the ~~at least~~ two sensor elements during ~~an~~ the exposure period (T).

2. (Currently Amended) A scanning system, comprising a light source, imaging optics for focusing light emitted from the light source onto an object to be scanned, an image detector to detect light of a point on the object that is backscattered from the object and that passes back through said imaging optics to at least two radiation-sensitive sensor elements (pixel), wherein

the image detector comprises two sensor elements for detecting the object point irradiated via the imaging optics,

means in the beam path between the aperture array and the object for changing a length of an optical path (d), and

means for adjusting an accumulation of charges in the two sensor elements from light intensity of the observed beam path during exposure period (T) in such a manner that a correlation with the optical distance (d) of the image plane from the imaging optics is created so that an altitude coordinate (zs) of the object can be reconstructed from the distribution of levels of intensity acquired from the two sensor elements during the exposure period (T),[[.]] ~~A scanning system as defined in Claim 1, wherein~~ said means altering ~~the~~ sensitivity of said sensor elements and/or ~~the~~ translucence in the observed beam path between

said imaging optics and said image detector~~, particularly said exposed area of said at least two sensor elements~~

3. (Currently Amended) ~~A~~The scanning system as defined in Claim ~~1~~2, ~~wherein~~including an aperture array ~~is provided~~ for ~~the~~ creation of a brightness distribution on said object.

4. (Currently Amended) ~~A~~The scanning system as defined in Claim 3, wherein by means of said aperture array a plurality of object points can be detected, there being provided at least as many groups of sensor elements as there are object points to be detected.

5. (Currently Amended) ~~A~~The scanning system as defined in claim 4, ~~wherein~~including deflecting means ~~for deflecting said observed beam path are disposed~~ in said observed beam path between said object and said sensors are proposed for deflecting said observed beam path.

6. (Currently Amended) ~~A~~The scanning system as defined in Claim 5, wherein said deflecting means is a beam splitter.

7. (Currently Amended) ~~A~~The scanning system as defined in Claim 5, wherein said deflecting means is disposed between said imaging optics and said light source.

8. (Currently Amended) ~~A~~The scanning system as defined in Claim ~~3~~5, wherein said deflecting means is disposed between said aperture array and said light source.

9. (Currently Amended) ~~A~~The scanning system as defined in Claim ~~3~~2, ~~wherein~~ including a moveable aperture ~~is provided~~ which at least partially shades said sensor elements depending on the amount of movement of said aperture.

10. (Currently Amended) ~~A~~The scanning system as defined in Claim 9, wherein said aperture is designed such that movement of said aperture causes a reduction of the shading of the at least one sensor element and an increase in the shading of said at least one other sensor element.

11. (Currently Amended) ~~A~~ The scanning system as defined in Claim 9, wherein said aperture shades, in an initial position, a part of said sensor elements completely and, in an end position, another part of said sensor elements completely and, in an intermediate position, shades both a part of certain sensor elements and a part of the other certain sensor elements.

12. (Currently Amended) ~~A~~The scanning system as defined in claim 11, wherein the degree of shading of said part of said sensor element is complementary to the degree of non-shading of the other part of said sensor element.

13. (Currently Amended) ~~A~~The scanning system as defined in claim 2, wherein said means consists of an electronically controlled optical element of variable translucence~~, in particular an LCD element~~.

14. (Currently Amended) ~~A~~The scanning system as defined in claim 13, wherein said aperture array is designed for two-dimensional scanning of said object.

15. (Currently Amended) ~~A~~The scanning system as defined in Claim 14, wherein regulating means are provided for adjusting the position of said aperture array such that regions not imaged in a first scan due to the pulse duty ratio of said aperture array are imaged in a second scan.

16. (Currently Amended) ~~A~~The scanning system as defined in claim 1, wherein said image detector is a line sensor.

17. (Currently Amended) ~~A~~The scanning system as defined in claim 1, wherein said image detector a flat panel sensor.

18. (Currently Amended) ~~A~~The scanning system as defined in claim 1, wherein said image detector is ~~in the form of~~ a CCD sensor.

19. (Currently Amended) ~~A~~The scanning system as defined in claim 1, wherein said image detector is ~~in the form~~ of a CMOS sensor.

20. (Currently Amended) ~~A~~The scanning system as defined in claim 1, wherein said sensor elements are disposed on separated image detectors and a beam splitter is provided in the observed beam path which transfers the same image to said second image detector, cross-fading between the two image detectors being effected by means of electronic and/or optical auxiliaries during the scanning period (T).

21. (Currently Amended) ~~A~~The scanning ~~configuration~~system as defined in claim 1, wherein at least two sensor elements are used and the sensitivity of one part of said sensor elements increases while that of the other part of said sensor elements decreases with increased adjustment.

22. (Currently Amended) ~~A~~The scanning ~~configuration~~system as defined in claim ~~1~~3, wherein ~~the~~ an average scanning distance of said aperture array is in accord with the desired measuring accuracy.

23. (Currently Amended) A scanning method ~~based on the principle of confocal microscopy, in which~~ wherein light is emitted from a light source onto an object to be scanned, which ~~the~~ light is focused by imaging optics, and also ~~in which~~wherein ~~the~~ light of an object point backscattered from the object and passed back through ~~the same~~said imaging optics is received by an image detector ~~with~~ which has at least two radiation-sensitive sensor elements ~~wherein~~, comprising the steps of:

assigning at least two sensor elements ~~are assigned~~ to an object point illuminated via the imaging optics,

varying ~~the~~ an optical distance (d) of ~~the~~an image plane ~~is varied~~ during ~~the~~an exposure period (T) in a specific manner via means disposed in ~~the~~an optical path between ~~the~~an aperture array and the object, and

modifying ~~the~~ a relationship between ~~the~~ an accumulation of charges produced in the at least two sensor elements and representing ~~the~~an intensity of the light in the observed beam path ~~can be modified~~ such that a correlation between said accumulation and the optical distance (d) of the image plane from the imaging optics is produced such that an altitude coordinate (zs) of the object can be reconstructed from the distribution of the levels of intensity acquired by the at least two sensor elements during ~~an~~a single exposure period (T).

24. (New) The scanning system as defined in claim 1, including a moveable aperture which at least partially shades said sensor elements depending on the amount of movement of said aperture.

25. (New) The scanning system as defined in claim 2, wherein at least two sensor elements are used and the sensitivity of one part of said sensor elements increases while that of another part of said sensor elements decreases with increased adjustment.